

The apparatus employed consisted of a small glass retort only, the globular receiver being surrounded by a certain quantity of water of known temperature. Two hundred grains of the liquid, whose vapour was to be examined, were rapidly distilled from this retort into the globe, and the rise of temperature in the surrounding water became the measure of the latent heat. A table follows, exhibiting the experimental results on the latent heat of several vapours: whence it appears that 967° is the latent heat of steam, 442° that of alcohol; of ether, 302.3° ; of oil of turpentine and of petroleum, 177.8° ; of nitric acid, 531.9° ; of liquid ammonia, 837.2° ; and of vinegar, 875° .

The paper concludes with a proposal for employing the vapour of alcohol in certain cases, for the purpose of propelling machinery.

Observations on the Heights of Mountains in the North of England.

By Thomas Greatorex, Esq. F.L.S. In a Letter to Thomas Young, M.D. For. Sec. R.S. Read May 7, 1818. [*Phil. Trans.* 1818, p. 395.]

Wishing to measure Skiddaw geometrically, the author employed a staff about 28 feet long. Its graduation commenced at 0° , placed about 3 feet above its lower end, from which to the top was exactly 25 feet. A stationary barometer was next placed 10 yards above the lake, and its variation and that of a thermometer were noted every half hour. Another barometer and thermometer were then set upon the summit of the mountain, and their respective heights accurately observed. A telescope, with cross wires, was then carefully levelled, and the wires made to intersect the highest point of the mountain. It was then pointed in the direction of the most convenient descent, and the staff carried down the hill till its top exactly coincided with the cross wires, the level of the telescope being carefully preserved. The perpendicularity of the staff was ascertained by plumb lines; and as it was seldom more than 40 feet from the telescope, no allowance was necessary for the earth's curvature. The most exact mode of managing the pole, says the author, was to stop my assistant when I observed its top to be about an inch above the cross wires, and then it was pressed gradually into the earth till an exact coincidence was obtained. The telescope was then carried down to the pole, levelled and placed in exact correspondence with zero. The pole was again carried to a new station, and this mode continued for fifty yards of descent. The barometer was then again set up and examined, and the process continued to the foot of the mountain. The height of Skiddaw, by levelling, was 1012 yards $3\frac{1}{2}$ inches.

Annexed to this paper are the results of several barometrical observations made on the summit of Skiddaw, and continued at different distances of fifty yards each down to the foot of the mountain.